

*United States Marine Corps
Command and Staff College
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5068*

MASTER OF MILITARY STUDIES

TITLE: Marine Aviation Logistics, Seabasing, Integration, Outsourcing and the Future.

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

**AUTHOR: Major Jeff D. Stone
United States Marine Corps**

AY 07-08

Mentor and Oral Defense Committee Member: Paul G. Gault, Jr.

Approved: [Signature]

Date: 30 April 2008

Oral Defense Committee Member: Richard L. DiNardo

Approved: [Signature]

Date: 30 April 2008

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2008		2. REPORT TYPE		3. DATES COVERED 00-00-2008 to 00-00-2008	
4. TITLE AND SUBTITLE Marine Aviation Logistics, Seabasing, Integration, Outsourcing and the Future				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) United States Marine Corps,Command and Staff College, Marine Corps Combat Development Command,Marine Corps University 2076 South Street,Quantico,VA,22134-5068				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 32	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

QUOTATION FROM, ABSTRACTION FROM, OR REPRODUCTION OF ALL OR ANY PART OF THIS DOCUMENT IS PERMITTED PROVIDED PROPER ACKNOWLEDGEMENT IS MADE.

EXECUTIVE SUMMARY

Title: Marine Aviation Logistics, Seabasing, Integration, Outsourcing and the Future.

Author: Major Jeff D. Stone, United States Marine Corps

Thesis: Marine Aviation Logistics is on the cusp of changes in the way aircraft will be supported in the future. Seabasing, the increase and permanent focus on joint operations and the responsibility to perform the logistics function in a more efficient manner mandate that we take a closer look at how we can do business better. Integration, interoperability and outsourcing will be the tools of the future that will enable us to support ageing aircraft while acquisitioning new weapons systems.

Discussion: The Seabasing concept places an entirely new set of demands on the Marine Aviation Logistician. In order to be prepared to provide seamless and transparent support to the war fighter, several areas of the aviation logistics systems need assessed. Functionally aligning the Marine Aviation Logistics Squadron (MALS) could glean some efficiency that could compensate for the increasing difficulty in supporting the ageing fleet of aircraft. Currently, the MALS is extremely stove piped in its structure. Departments are divided almost exclusively along military occupational specialty (MOS) lines rather than designed by function. In reality, several MOSs working in concert creates a truly functionally aligned organization. Arranging a supporting element by MOS rather than function begs the question of whether or not the MALS is organized to best serve the war fighter or a structure of convenience. While streamlining the current structure and wringing out as much efficiency as possible may be the short-term solution, integration, outsourcing and logistics specific leadership training are the long-term concerns for supporting the Seabasing concept. Developing aviation logistics leaders and understanding the complexities of implementing change in organizations are crucial to adapting to the future needs of the war fighter.

Conclusion: The current system of supporting aircraft has served Marine Aviation well using a stove piped structure focused on a MOS breakdown. Advances in technology, coupled with the advent of Seabasing and emerging weapons systems on the horizon will require a comprehensive look at the future of Marine Aviation Logistics. The age of interoperable systems that cannot only link Marine ground and air logistics, but interservice operations has clearly arrived. Funding shortages and our responsibilities to prudently use the tax dollars entrusted by the American people require us to look to outsourcing for potential savings while never sacrificing effectiveness. Redundant data management systems that do not easily interface with each other have been the hallmark of the last two decades. Lessons from the commercial industry need to be considered when developing an all-encompassing logistics solution for the future.

TABLE OF CONTENTS

	Page
DISCLAIMER	ii
EXECUTIVE SUMMARY	iii
TABLE OF CONTENTS.....	iv
ACKNOWLEDGEMENTS	v
INTRODUCTION	1
SEABASING	2
IMPACT OF SEABASING ON MARINE CORPS AVIATION LOGISTICS.....	3
AVIATION LOGISTICS INTEGRATION	4
INTEROPERABILITY AND REDUCING REDUNDENCIES.....	6
TOTAL ASSET VISIBILITY.....	8
OPPONENTS OF INTEGRATION.....	10
OUTSOURCING POSSIBILITIES.....	13
DEVELOPING AVIATION LOGISTICS LEADERS.....	15
MARINE AVIATION LOGISTICS SQUADRON (MALS) DESIGN IMPROVEMENTS...	18
IMPLEMENTING CHANGE	20
CONCLUSION.....	20
END NOTES	21
BIBLIOGRAPHY	22

ACKNOWLEDGEMENTS

There are dozens of people who have provided me with an entire career of knowledge, guidance, and encouragement that aided me in the preparation of this thesis. First and foremost, I must thank God for all that I am able to accomplish. With him, all things are possible.

I am deeply grateful to LTC Major who has provided me with so much more than just an academic education. I have grown professionally and personally as a result of his personal interest in my development.

Special thanks are due Dr. Gelpi who patiently guided this project, offering suggestions, revisions and encouragement throughout the process. Without his assistance, this project would not have been possible.

A wonderful group of people has provided me with leadership, mentorship, and friendship that have guided my thoughts throughout the development of this thesis. Thanks are due to Col Byron Stebbins who has served as a shining example of what a "Leader of Marines" really is. A special thanks to CWO3 Patrick Holland who has patiently explained and taught me the intricacies of aviation logistics and provided his unwavering friendship.

Lastly, but certainly not least I want to thank my wife Jennifer whose encouragement is in great part responsible for me completing this project. I am so very blessed to have her as my partner. Additionally, to my four sons, J.D., Matthew, Levi, and Luke who provide me with the kind of excitement that pulls me out of bed in the morning.

INTRODUCTION

Opportunities for advances in the way Marine Corps aviation logistics may be conducted in the future are becoming plentiful, mature and readily available. The increased focus on Seabasing will place an entirely new set of demands on the Marine aviation logistician. Logisticians must identify, source and plan for these new requirements. The development of these plans must include the proven methods of the current system, but should not be limited to traditional solutions. The wide spectrum of logistics options to include commercial opportunities and outsourcing must be considered when developing the overarching future concept of support.

This paper will assess the most relevant issues and concerns of Marine Aviation Logistics in its current state while exploring future solutions for providing world class support to the war fighter. Advances in technology, speed, availability and affordability of commercial transportation solutions have illuminated the need to re-examine the structure and functional alignment of the Marine Aviation Logistics Squadron (MALS). The challenges of supporting ageing legacy aircraft while streamlining the Marine Aviation Logistics organizational structure to meet the needs of the new and emerging airframes dictate an examination of outsourcing possibilities. Is outsourcing some of our logistical requirements a viable solution or is losing that skill set not an option or in line with our expeditionary doctrine?

Marine Aviation Logistics is on the cusp of changes in the way aircraft will be supported in the future. Seabasing, the increase and permanent focus on joint operations along with the ever-present responsibility to perform the logistics function in a more efficient manner mandate that we take a closer look at how we can do business better. Integration, interoperability and outsourcing will be the tools of the future that will enable us to support ageing aircraft while acquisitioning new weapons systems.

SEABASING

Marine Corps aviation continues to develop in its complexity at the same time continuing to require support for ageing aircraft. It is important to identify the driving force behind the need for logistics improvements. The need for aviation logistics transformation appears to be most influenced by the development of the Seabasing concept. In order to be prepared for the impending change from traditional operations to sea based operations, aviation logisticians need be aware if not well versed in our future requirements. Since seamless and transparent logistical support is the ultimate goal, focus on ensuring the supportability of a concept before it is implemented is imperative.

Seabasing as defined by the Joint Integrating Concept of Seabasing is:

The rapid deployment, assembly, command, projection, reconstitution, and re-employment of joint combat power from the sea, while providing continuous support, sustainment, and force protection to select expeditionary joint forces without reliance on land bases within the Joint Operations Area (JOA). These capabilities expand operational maneuver options, and facilitate assured access and entry from the sea.¹

There are seven key principles of Joint Seabasing. These principles provide the context in which aviation logistics improvements need to be made. Understanding the definition and key principles of Seabasing are paramount when developing a strategy for the direction and future of providing aviation support. The following are the 7 key principles of Joint Seabasing as described in the Joint Integrating Concept document on Seabasing.²

- 1) Use the sea as maneuver space.
- 2) Leverage forward presence and joint interdependence

- 3) Protect joint force operations.
- 4) Provide scalable, responsive joint power projection.
- 5) Sustain joint force operations from the sea.
- 6) Expand access options and reduce dependence on land bases.
- 7) Create uncertainty for our adversaries.

Understanding the direction, key principles and impact of future operations provides a starting point for ensuring our support concepts remain relevant and evolve with the war fighter.

IMPACT OF SEABASING ON MARINE CORPS AVIATION LOGISTICS

In order to capture the impact, one must understand that Sea based logistics changes the fundamental concept of support. Currently, Marine Aviation Logistics is designed with a substantial footprint in theater. Mobile facilities with the capability to provide end item repair and spare parts are the hallmark of the traditional support design. Seabasing by its very nature will minimize the footprint in theater which will require all repairs to be done at sea.³ This capability currently exists and is used aboard the two aircraft maintenance ships *SS Wright* and *SS Curtis* as well as a host of aircraft carriers. These floating Intermediate Maintenance Activities (IMA) have proven to be effective but are space limited and often require reach back support to more robust warehousing and maintenance activities.

The implementation of this concept will require that more Ready for Issue (RFI) parts are available at the sea base due to the limited space for the repair equipment and manpower required. Since spare parts are finite the only solution is to have a more rapid turn around of the required items. The solution to simultaneously supporting developing and ageing aircraft systems from a sea base and understanding how this concept diverges from our current method is the basis for developing a successful future support strategy.

Assuming that Sea based logistics is the end state, what then are the short and near term tenants that must be accomplished in order to achieve supportability? If reverse engineering was the solution then integration, outsourcing and developing aviation logistics leaders would be the answer. Clearly Seabasing is a joint concept, so becoming fully integrated within the Marine Corps and throughout the services must be a priority. Outsourcing non core competency and non deployable functions within aviation logistics can provide the flexibility and cost savings necessary to accomplish integration and sea based logistics. Additionally, developing aviation logistics leaders that understand the changing environment, are open to nontraditional logistics solutions and have a shared vision and direction of the future are all prerequisites to accomplishing a successful transition to the Seabasing concept.

AVIATION LOGISTICS INTEGRATION

In order to clearly articulate the necessity of integrating logistics within the military services and particularly within the Marine Corps, the term integration must be defined in the context of this paper. Secondly, reasons to integrate as well as counterpoints and challenges will need to be identified. Lastly and mostly importantly, since it would be disingenuous to merely point out the shortcomings of the current system I will offer a recommendation on the topic of integration of aviation and ground logistics within the Marine Corps.

Integration is certainly a widely discussed topic and just as widely misunderstood. Clearly, a mutual understanding of what kind of integration and a common definition are essential to a productive discussion on the subject. There is TacAir integration, interservice integration, interagency integration and even integration of functions within the Marine Corps.

None of these should be confused with cooperation. The cooperation of agencies and military services is very different than what is being suggested. For the purposes of this paper,

integration is the combining of two or more similar functions in order to increase the effectiveness of that function.

Note that in this description the word efficiency was intentionally left out. In aviation logistics, effectiveness is the most important measure while efficiency is the highly desired by product of a well designed process. Any recommendation for a change in a logistical process that puts efficiency before effectiveness would be counter productive and lead to a system driven primarily by cost instead of output. To simplify this truth one would only have to ask the end user, war fighter or mechanic how impressed he is with the cost savings discovered by delaying an important requirement only one day past when it was needed.

Since fully integrating the logistics functions among the services is unlikely any time soon⁴, the focus of this paper will be on the integration of nearly identical logistical functions within the Marine Corps. Specifically, within the Marine Corps, logistics is broken down into two basic areas. The first is ground logistics and the second being aviation logistics. Both have common components, such as supply departments with warehouses and maintenance departments with similar levels of repair. Both aviation logistics and ground logistics have separate schools with different data management systems to accomplish many of the same tasks.

Now that a common point of reference and the definition of integration have been established, the question of, why should we look at integration at all, can be answered. Integration is the mechanism, tool and vehicle needed to uncover cutting edge improvements in our current system of supporting combat operations. In short, the reason for integration can be found in the concept of continuous process improvement (CPI).⁵ Beyond this seemingly obvious reason, streamlining processes that create interoperability can't be far down the list of imperative issues to achieving a joint logistics environment.

Integration offers the potential of reducing redundancies in manpower and transportation while eliminating stove piped distribution networks, excess training facilities and infrastructure. Conceptually, integration would allow for the development of a more flexible, adaptive and responsive system with long term cost savings benefits.⁶ Any merit to the potential benefits stated above clearly warrants the exploration of the concept of logistics integration within the Marine Corps. Interoperability and reducing redundancies remains two of the most compelling reasons to actively pursue integration within the Marine Corps.

INTEROPERABILITY AND REDUCING REDUNDENCIES

Interoperability is described as the ability of diverse systems and organizations to work together. Clearly, the ability of logistical components within the Marine Corps to work together would be advantageous. Why then in this age of interoperability where systems acquisitions professionals focus on acquiring only those systems that allow us to communicate data across interservice lines⁷ do we continue to accept and encourage a disconnected logistics system?

Ground supply Marines and an aviation supply Marines use uniquely different software systems to procure, ship and manage the assets of their trade. Both ground logisticians and aviation logisticians have process improvement initiatives that are currently being separately funded and implemented. The ground logistics initiative, Logistics Modernization (LOGMOD)⁸ and the aviation logistics improvement initiative AIRSpeed Enterprise⁹ both are making enormous strides in their separate and individual areas of expertise, but do little for solving the problem of integrated logistics within the Marine Corps. In fact, both Aviation and Ground Logistics are spending a tremendous amount of money to improve their respective data management systems with little inoperable thought.

Beginning the integration process within the Marine Corps logistics community would appear to be the most logical place to begin. In not doing so, valuable resources are used to improve the current technologies within two separate systems when the resources could instead be used to modify one or the other for use by the entire service. Continued use of resources in the quest for individual data systems that do not meet the interoperable standards of our own service is irresponsible.

Streamlining our data systems along with our processes to ensure that ground and aviation logisticians within the same AOR could have total asset visibility and use the same transportation methods is more than just a good idea. Streamlining or integrating these data management systems is no small task, but certainly has its advantages when evaluating the potential in reducing the redundancies that currently exist. For example, upgrading the software for two separate data managements systems that perform essentially the same task is a waste of financial resources. Hiring commercial companies like *Oracle* to produce GCSS-MC (Global Combat Support System- Marine Corps) in the case of Marine Ground logistics¹⁰ to develop a management system while the aviation logistics community employs *AIRSpeed* to aid in the management of its system clearly illustrates potential for eliminating some data management redundancies.

Integration as a tool to eliminate redundancies and improve interoperability is not limited to data systems. Integration in its very nature can reduce the amount of manpower required to complete a task. For example, imagine two warehouses side by side, one ground logistics and one aviation logistics. Consider that in CONUS operations the delivery units of both are normally confined to on base operations. Separately these delivery units might require 5 drivers each. The total drivers required to complete the daily tasks of both organizations would be 10.

If these organizations were combined or integrated it may only take 8 drivers to complete the task of both delivery units freeing up 2 drivers for other operations.

This same principle can be applied to the amount of vehicle support required for both organizations resulting in similar reductions in assets required. Understanding this rudimentary illustration of how integration can eliminate redundancies in manpower and vehicle assets may seem like an oversimplification, but can be applied to understand the potential effect on the manpower and asset requirements of a larger scale integration project.

Just like the reduction of data management systems, manpower and vehicle support, integration also provides the opportunity for a reduction in the number of training facilities and infrastructure. For example, ordering, procuring, basic warehousing and delivery are nearly identical functions to both ground and aviation logistics. If these functions were integrated so could the training of the Marines required to complete these tasks. Currently these nearly identical functions are taught at two different schools with equally contrasting data management systems, separate manpower requirements and both competing for scarce infrastructure funds to maintain them. The long-term advantages of reducing redundancies in tasks and function include savings in infrastructure, manpower and footprint.

TOTAL ASSET VISIBILITY

If integrated logistics and outsourcing don't completely answer the question of how to most effectively provide support to the war fighter, then Total Asset Visibility may very well be the interim solution. Total Asset Visibility is the ability to track assets from their origin through the distribution network and all the way to the end user. This concept is sometimes referred to as "factory to foxhole".¹¹ To a greater degree, Total Asset Visibility would provide the ability to view quantities world wide regardless of service and provide access to those assets through a

single data management system. For example, a Marine in Iraq could look in this system from his terminal and see that there are no assets available in theater, but identify and order one from an Army warehouse in Virginia. Additionally, as he orders the asset he can simultaneously watch the on hand quantity in Virginia decrease by one in real time. After he orders the item he is able to track it through the entire system until it arrives in Iraq. The system would provide total visibility of assets available regardless of service and track them across an all encompassing joint distribution pipeline.

This concept has recently shown great promise due in great part to advances in Radio Frequency Identification (RFID) technology. This technology is what allows users to track items throughout the distribution network.¹² Advances in this technology include decreasing the size of the RFID tag and improving the method of transmitting and receiving the signal.¹³ There are currently two types of RFID tags, active and passive. Active RFID tags emit a signal that can be captured via satellite. This type can best be described as similar to the GPS systems in many of today's newer vehicles. The second and more commonly used type is the passive RFID tags. These must pass through gates that detect them and then report the last gate the item passed through. This technology is very similar to the tracking chips used in marathons races to determine the times of thousands of runners. Both types of RFID tags have greatly improved our ability to track assets through the distribution network. Active tags enable us to locate exactly where an item is as opposed to the passive tag that will only indicate the location up to the last gate it passed through and the time.

While barcode technology has made supply management easier it still is a manual process that is time consuming and often results in items that are unaccounted for and very difficult to locate.¹⁴ The barcode readers used are still service specific and down load the data into stove

pipelined management and processing systems. The total asset visibility concept will certainly aid in eliminating two of the most common problems in supply management, lost or duplicated orders.

Total asset visibility will be needed particularly as we move toward the future and Seabasing. In order for Seabasing to be a viable option for logistics support, real time visibility of all assets in and around the Seabase as well as outside the theater will be necessary.

Until this capability is available, efforts by the individual services and agencies to share information needs to continue. Some of the described desired effects above are partially possible today using a myriad of systems that don't interface and require a comical amount of passwords. Still, this ability is limited to the savviest logisticians. To say that the current efforts to achieve similar results are reliable, accurate and duplicable is a gross understatement.

OPPONENTS OF INTEGRATION

It would appear for these reasons that integration of ground aviation logistics or at least the Supply and warehousing portion would be a "No Brainer." In order to facilitate a fair comparison of whether or not to combine logistics functions within the Marine Corps, an equally in depth look at the reasons for maintaining status quo must be addressed. Does integrating the logistical function within the services work against the Marine Corps philosophy of having core logistics capabilities organic to the MAGTF?¹⁵ Additionally, each service is responsible for the logistic support of its own force.¹⁶ Opposers of logistics integration would be quick to point out the many differences such as different types of equipment, mission variances, or the biggest challenge to integration of logistics with the Marine Corps, the funding source.

Aviation logistics uses "blue" dollars as opposed to ground logistics funds are "green" dollars. "Blue" dollar appropriations are used to fund Naval Aviation which encompasses Marine Air, while "Green" dollar funds are used primarily to support ground forces of the

Marine Corps. Although there are many overlaps such as cleaning supplies etc., it is only fair to mention the difference in funding source as a potential challenge to integration within the Marine Corps. This is not to say that the funding issue constitutes such a significant challenge that we should overlook the advantages or use it as an excuse not to take a serious look at integration. The knowledge, ability, and technology exist to separate the fund codes in order to solve this challenge.

Another argument against integration, in the macro sense is the success of the Marine Air Ground Task Force (MAGTF) and its ability to self sustain. In other words, the MAGTF is not dependant on another service or a combined service effort to support itself logistically. Granted the Navy and Marine Corps work closely with each other and certainly play a significant role in many operations, but logistics is still a service function and has been organic to the MAGTF.¹⁷ With the unequivocal success of the MAGTF and its ability to support operations why would we consider integrating the logistical functions? This may be the most compelling argument for not integrating logistics between the services, but does not adequately address the issue of integration of the Marine aviation and ground logistics functions.

Then there is the argument against the integration of the Air and Ground Logistics functions within the Marine Corps that the mission and equipment differences are too great and therefore require separate systems of data management, warehousing and distribution. Proponents of this argument would claim that aircraft parts are considerably different that of the ground combat requirements. Special handling is required of aircraft parts. Examples of this type of special handling are electro-static and suspension packaging required for many aviation related parts. Another similar explanation for separate supply chain management systems within the Marine Corps is the sensitive and expensive nature of aviation assets.

In an effort to provide a counter argument, consider the comparison between the Wal-Mart Supply Management System to that of the Marine Corps. The Wal-Mart supply management system is completely interoperable.¹⁸ Unlike the Marine Corps, the category of product doesn't determine which data management; warehousing and distribution system is used.¹⁹ Automobile generators, textiles and frozen foods are all procured, shipped, stored and distributed using an all encompassing system. Obviously, special handling such as refrigeration is an important consideration, and integration would not change the requirement. An example of a commercial company able to break the code on shipping all kinds of items regardless of packaging requirement is UPS. They are able to ship special handling items such as live fish without damage and without a significant delay.²⁰ The item or product required matters even less when discussing the topic of managing data. A single supply data management system would be sufficiently capable of processing an order for a tank or truck part as easily as an aircraft part or canteen.

These challenges to integration are significant, but the long term advantages of integrated logistics far surpass the difficulty of implementing a more interoperable system. Although there are no "flip the switch" solutions, a clear vision of a consolidated logistic system that is able to act independently while still being connected to the entire DOD system needs to be established. Obviously, a phased approach to accomplishing the end state would have to be directed and intermediate solutions may have to be developed. Without this kind of commitment, direction and vision logistics integration within the Marine Corps will never reach its full potential.

OUTSOURCING POSSIBILITIES

If the integrating of our existing logistics capabilities is not the solution, then outsourcing just may be. The lack of an all encompassing system that bleeds inefficiencies certainly helps support the argument for outsourcing.

What is outsourcing? Outsourcing, also commonly referred to as the contracting out of a requirement, is the transfer of functions to the private sector that has been traditionally accomplished by service men and women.²¹ "DOD defines outsourcing as the transfer of functions performed in-house to outside providers and privatization as the transfer or sale of government assets to the private sector."²²

Some of the most common reasons for outsourcing are; alleviating manpower deficits, freeing up valuable resources to focus on Marine Corps core competencies, limit time and financial resources needed to constantly upgrade developing technologies and reduce infrastructure costs to increase funds available for updating or procuring new weapon systems.²³

The outcome or end state of outsourcing is often misunderstood. Many people view outsourcing as primarily a means to facilitate cost reduction. While there are a plethora of studies that indicate cost savings between 10 and 15 percent,²⁴ many people overlook the opportunity for advances in efficiency offered by the private sector.

Often times the private sector is inherently more efficient out of necessity. The private sector must be at least as efficient as its competitors in order to stay in business and therefore provide an alternative to the monopoly of traditional military processes. The competition associated with outsourcing normally results in efficiencies not obtained by the military.

There are several different levels of outsourcing that can be considered and an equal amount of risks and challenges associated with each. Since military logistics encompasses procuring,

ordering, storing, distributing and retrograding of material, any one of these can be a candidate for outsourcing individually or even a more aggressive approach by outsourcing all the functions. The commercial industry has taken off with its ability to provide "Outsourcing" logistics solutions to companies.

A successful example of outsourcing logistics include companies like Nike using logistics solutions provided by UPS to handle warehousing, inspection, filling orders and of course home delivery from internet sales.²⁵ The point is that this is not a new and emerging commercial capability but rather a well established successful industry. There are also several examples within the Department of Defense of different types of outsourcing ranging from IT solutions with NMCI to Brown and Root food services in deployed areas.

Not surprisingly, the Army and Naval Aviation Logistics have experimented with outsourcing of their respective aviation logistics functions. Fort Rucker serves as the main aviation training base for the U.S. Army and has outsourced its aviation maintenance for over 30 years with acceptable results.²⁶ The Naval aviation training facilities at Pensacola Naval Air Station, Meridian Naval Air Station and Corpus Christi Naval Air Station all have outsourced their aviation maintenance as well. Knowing that these have been well established successful examples of outsourcing for training commands, the leap to fleet logistics facilities shouldn't be that daunting.

Typical concerns and associated negative issues with outsourcing include the fear of fraud and abuse by contractors, cultural resistance to change and feeling of loss of control over the results delivered in a particular function.²⁷ Additionally, the learning curve associated with a new contract is initially high. Although it usually takes between one to two years for efficiencies to be realized, the long term savings still outweighs losses due to set up time and learning

curve.²⁸ Comparatively, the military has a similar learning curve due to the constant rotation cycle. Finally, the initial implementation process is cumbersome, time consuming and the cost savings and efficiencies aren't immediate.

Although many would like to criticize the performance of some outsourcing ventures like NMCI, in order to be fair one would only have to compare it to what was available prior to the venture and more importantly attempt to imagine if we could have done better with our own limited organic IT capability. Our ability to provide world class logistics pales in comparison with that of a global company like UPS which operates the eleventh largest airline in the world with 270 aircraft.²⁹ Even if the use of a particular outsourcing company does not perform up to the required specifications the failure may have been in the selection of the company, not the outsourcing concept itself.

DEVELOPING AVIATION LOGISTICS LEADERS

The structure of an organization is directly related to its ability to develop the future leaders of the organization. A progressive increase in responsibility coupled with a parallel and equally progressive organizational structure has the best chance of developing well prepared leaders from inside the organization. For example, when preparing leaders for command at the Lieutenant Colonel level a typical Infantry Marine Officer will normally have had the opportunity to command at either the Major or Captain level or both prior to taking Command at the Lieutenant Colonel level. This obvious progression prepares a Marine for command at the next level. Conversely, the Lieutenant Colonel Marine Aviation Logistics Commander will normally never have experienced command prior to being selected at this level. This is not to imply that Infantry Officers make better commanders or to mitigate the individual talents and experiences of men, but to point out that the organizational structure has an impact on

developing the future leaders of an organization. The leadership opportunity disparity is due to the differences of the organizational structure. Some may argue that the definition of Command may be the issue and that in the Aviation community a department head tour successfully prepares Aviators for the rigors of Command. I would argue that although department heads are ultimately responsible for what happens or fails to happen within their respective departments, just as commanders of the same rank and experience, they are not the same and one clearly provides more insight into the challenges of future command than the other.

Along with the structure of the organization, the method and content of our formal education is at least as important and arguable more important. Formal education obviously comes in a variety of different forms as well as focuses. If developing logistics and specifically, aviation logistics leaders is the focus then an emphasis on leading in that capacity should be placed in the education process. It has been said that leadership is universal and transcends the type of organization that is being led. There are many examples of great leaders being successful in more than one arena of guiding organizations. President Eisenhower transitioning from a great battlefield commander to the leader of the most powerful country on earth and Sports legends like Coach Joe Gibbs of the Washington Redskins winning the top prize in football and in NASCAR is just two of the many examples that come to mind. Even still, it would be a fallacy to assume that basic leadership principles and in depth technical knowledge are enough to produce the kind of aviation logistics leaders that are world class.

Opponents of this thought process would contend that the technical and leadership education system currently in place works and the proof is in our ability to provide "World Wide" sustainment on very short notice. One would only need to compare our current logistics

capability to that of FEDEX, DHL or UPS to understand that there clearly appears to be lessons that can be learned by the commercial industry.

There have been to some degree and understanding of this concept and even mechanisms in place to capture some of those practical lessons offered by the commercial industry. The Fellowship program was designed to allow a service member to work in one of the industry leading companies in lieu of attending a resident PME school to glean lessons that could be potentially brought back and implemented to improve our current way of conducting logistics operations. This action learning allows the participant to engage in a type of leadership learning very different than the typical lecture series or attending a PME school. Being "plugged in" to an industry leading company is a substantial investment, but allows for learning outside the written and intellectual realm and focuses on the practical application of leadership within the field.

Boeing was one company that participated in the Fellowship program. This kind of education enables the participant to be completely immersed in the commercial industry and glean valuable leadership lessons specifically related to aviation logistics. Besides the incredible leadership lessons, cutting edge business practices related to aviation logistics become available to be brought back to the Fleet Marine Force while the Marine is still on active duty.

Opponents of the Fellowship program claim that the time a Marine spends out of the Fleet is not a good use of our manpower and resources. Additionally, very little is brought back to the Fleet Marine Force in the form of usable techniques and the leadership value is only commiserate with that of our PME schools. Just like the outsourcing concept, the Fellowship program idea is valuable, but there may be improvements to the execution of the program that could be made to mitigate such concerns.

MARINE AVIATION LOGISTICS SQUADRON (MALS) DESIGN IMPROVEMENTS

While integration, outsourcing and commercial technology may be the long term solution, streamlining the current structure and wringing out as much efficiency as possible may be the short-term solution. The organizational support structure of the MALS must be examined to determine if it is functionally aligned to support the war fighter or designed to best fit the needs of the supporting structure. In other words, are the processes involved under the current structure functionally aligned to support the end user or is our system designed for ease of the logistical process; sacrificing a level of customer service. Functionally aligning the MALS departments and sections could glean some efficiency that could compensate for the increasing difficulty in supporting the ageing fleet of aircraft. Currently, the MALS organizational structure is extremely stove piped. Departments are divided almost exclusively along military occupational specialty (MOS) lines rather than designed by function. In reality, several MOS lines working in concert creates a truly functionally aligned organization. Arranging a supporting element by MOS rather than function begs the question of whether or not the MALS is organized to best serve the war fighter or a structure of convenience.

The concept of streamlining the MALS organization is certainly not a new one. There are several manufacturing and organizational structure design initiatives taking place throughout the Marine Corps under the umbrella of AIRSPEED enterprises to include "Theory of Constraints", "Lean Manufacturing" and "Six Sigma" concepts. The "Constant Process Improvement" (CPI) message coupled with the implementation of tailored process and physical design changes has gleaned significant improvements. Even the most stubborn critics of the AIRSPEED initiative would admit that substantial gains in process flow and output have been discovered.

It is imperative that this trend continues and that the Marine Corps aviation logistics leadership maintains support for such initiatives. The area where the initiative falls short is in its scope of improvements. Interoperability, functional alignment of departments and material integration are all examples of the "next step".

Interoperability is clearly a requirement for support in the future and any improvements need to be geared toward accomplish this capability. Data system improvements made with the absence of interoperability in mind need to be scrutinized in order to avoid waste of resources.

The benefits of aligning structure by function instead of MOS must be examined. The MALS provides several different functions to the end user yet the organizational structure is designed along MOS lines. This method has its advantages including ease of training and consolidated expertise. Of all the disadvantages of a system designed by MOS, the most obvious is its interdependencies and disconnected metrics of success. One department or section relies on another for the successful completion of an output. Both departments may have achieved their metric of success yet the overall function or output was not accomplished. A functionally aligned department vice MOS aligned could be measured by the completion of the end user requirement instead of a compartmentalized measure of success. Interoperability, systems integration, outsourcing possibilities and functional design can be incorporated into the study of the future improvements and design of the MALS.

IMPLEMENTING CHANGE

Implementing change warrants discussion since it may be the most difficult part of the successful integration of aviation logistics into the future war fighting concepts. There are volumes of books printed about the difficulties of implementing change in the business world with nearly all citing some reference to the human or cultural aspect. I submit that effectively

accomplishing change in the military environment is significantly more difficult due to the structured nature of our organizations and our culture of tradition.

As with any task, a focused vision for where the organization is going as a whole must be clear. A significant challenge that military organizations face is the constant rotation of leaders and subordinates alike. Even if a focused vision is realized within a military organization often times the leader will rotate and a new leader will either kill the initiative or at the very least stifle its progress due to the natural learning curve associated with taking a new position. Conversely, the rotation of key subordinates that are spearheading an initiative will have the same effect.

Regardless of the direction of Marine Aviation Logistics of the future, integration, outsourcing and organizational design will all require a change to the current practices. Understanding that implementing change requires an implementation strategy in itself will help ensure success. Execution of the implementation strategy is as important as the vision itself. After all, the best vision for the future, poorly implemented is the difference between concept and reality.

CONCLUSION

The current system of supporting aircraft has served Marine Aviation well using a stove piped structure focused on a MOS breakdown. Advances in technology, coupled with the advent of Seabasing and emerging weapons systems on the horizon will require a comprehensive look at the future of Marine Aviation Logistics. The age of interoperable systems that can not only link Marine ground and air logistics, but interservice operations has clearly arrived. Funding shortages and our responsibilities to prudently use the tax dollars entrusted by the American people require us to look to outsourcing for potential savings while never sacrificing effectiveness. Redundant data management systems that do not easily interface with each other have been the hallmark of

the last two decades. Lessons from the commercial industry should be considered when developing an all-encompassing logistics solution for the future.

BIBLIOGRAPHY

Bossidy, Larry, Charles Burck, and Ram Charan. *Execution: The Discipline of Getting Things Done*. New York: Crown Business, 2002.

Boyatzis, Richard, Daniel Golemn, and Annie Mckee. *Primal Leadership : Realizing the Power of Emotional Intelligence*. Boston: Harvard Business School Press, 2002.

Debree, Edward. "Officers evaluate Enterprise AirSpeed program." Marine Corps News -> Officers evaluate Enterprise AirSpeed program.
www.usmc.mil/.../mcn2000.nsf/ac95bc775efc34c685256ab50049d458/165b69bc532aedd285257207000571c7?OpenDocument (accessed January 13, 2007).

Dowling, Glen. "Army Logistician (Army and Marine Joint Ammunition Operations)." U.S. Army Logistics Management College.
http://www.almc.army.mil/alog/issues/NovDec07/AMjoint_ammop.html (accessed Mar. 2, 2008).

"FM 3-31.1 - Army & Marine Corps Integration in Joint Operations." Welcome to www.militarypubs.com. <http://www.militarypubs.com/field%20manuals/FM03-31.01.htm> (accessed Mar. 2, 2008).

Friedman, Thomas. *The World Is Flat: A Brief History of the Twenty-first Century*. New York, NY: Picador, 2007.

Grogan, Peter A. "Outsourcing: An examination of the Marine Forces Pacific cost reduction initiative" Masters thesis, Naval Postgraduate School, Dec 1998.

Haviland, Joseph. "Sea Based Logistics: Full Speed Ahead." Sea Based Logistics: Full Speed Ahead - Storming Media. www.stormingmedia.us/15/1543/A154363.html (accessed December 15, 2007).

Headquarters U.S. Marine Corps. Logistics. MCDP 4. Washington , DC: Headquarters U.S. Marine Corps, February 21, 1997.

Kang, Keebom, and Kevin Gue. "SEA BASED LOGISTICS: DISTRIBUTION PROBLEMS FOR FUTURE." Sea Based Logistics Distribution Problems for Future Global www.informs-cs.org/wsc97papers/0911.PDF (accessed January 8, 2007).

"Marines see GCSS-MC for the first time." LOGMOD. <https://logmod.hqmc.usmc.mil/> (accessed December 22, 2007).

Millham, Jacquelyn . "Site and individual award winners lauded." Enterprise AIRSpeed. www.cnaf.navy.mil/airspeed/default.asp?PressReleaseID=53668 (accessed December 22, 2007).

Mishoe, Roger M. "A Survey on Training and Education Requirements of Marine Corps Aviation Logistics Officers in Preparation for Sea Basing." Masters thesis, Naval Postgraduate School, Sept 2004.

"Navy-Marine Corps Aviation Integration Study." Strategic Planning.

<http://www.wbbinc.com/case-studies/navy-marine.html> (accessed Mar. 2, 2008).

Polowczyk, John. "Navy-Marine Corps logistics integration | Navy Supply Corps Newsletter | Find Articles at BNET.com." Find Articles at BNET.com | News Articles, Magazine Back Issues & Reference Articles on All Topics.

http://findarticles.com/p/articles/mi_m0NQS/is_1_67/ai_112985211 (accessed Mar. 2, 2008).

Polydys, Mary. "INTEROPERABILITY IN DOD AQUITIONS PROGRAMS THROUGH ENTERPRISE "ARCHITECTING"." Interoperability in DoD Acquisition Programs through Enterprise www.cnaf.navy.mil/airspeed/default.asp?PressReleaseID=53668 (accessed Jan. 2, 2008).

Russell, Michael. "Logistics at Wal-Mart." Wal-Mart logistics. ezinearticles.com/?Logistics-At-Wal-Mart&id=295852 ... (accessed February 2, 2008).

"Seabase." GlobalSecurity.org - Reliable Security Information.

<http://www.globalsecurity.org/military/systems/ship/seabase.htm> (accessed November 17, 2007).

"Sebased Logistics, A 21st Century Warfighting Concept." MCCP: Sea Based Logistics.

www.fas.org/man/dod-101/sys/ship/docs/sbl.htm (accessed December 17, 2007).

Smith, Perry. *Rules & Tools for Leaders*, . New York: Berkley Publishing Group, 2002.

U.S. Department of Defense. *Doctrine for Logistic Support of Joint Operations* Pub 4-0, January 1995.

U.S. Department of Defense. *Seabasing Joint Integrating Concept(JIC)*Seabasing JIC Version 1, August 1, 2005.

Yopp, J., J. "Future Seabasing Technology Analysis: Logistics Systems" Center for Naval Analysis, Alexandria, VA., Aug 2006.

¹ U.S. Department of Defense. *Seabasing Joint Integrating Concept(JIC)*Seabasing JIC Version 1, August 1, 2005, 5.

² Ibid.,7.

³ Ibid., 12.

⁴ John Polowczyk, "Navy-Marine Corps logistics integration | Navy Supply Corps Newsletter | Find Articles at BNET.com." Find Articles at BNET.com | News Articles, Magazine Back Issues & Reference Articles on All Topics. http://findarticles.com/p/articles/mi_m0NQS/is_1_67/ai_112985211 (accessed Mar. 2, 2008).

⁵ Jacquelyn Millham. "Site and individual award winners lauded." Enterprise AIRSpeed. www.cnaf.navy.mil/airspeed/default.asp?PressReleaseID=53668 (accessed December 22, 2007).

⁶ "Navy-Marine Corps Aviation Integration Study." Strategic Planning. <http://www.wbbinc.com/case-studies/navy-marine.html> (accessed Mar. 2, 2008).

⁷ Mary Polydys. "INTEROPERABILITY IN DOD ACQUISITION PROGRAMS THROUGH ENTERPRISE "ARCHITECTING"." Interoperability in DoD Acquisition Programs through Enterprise.... www.cnaf.navy.mil/airspeed/default.asp?PressReleaseID=53668 (accessed Jan. 2, 2008).

⁸ "Marines see GCSS-MC for the first time." LOGMOD. <https://logmod.hqmc.usmc.mil/> (accessed December 22, 2007).

⁹ Edward Debree. "Officers evaluate Enterprise AirSpeed program." Marine Corps News -> Officers evaluate Enterprise AirSpeed program. www.usmc.mil/.../mcn2000.nsf/ac95bc775efc34c685256ab50049d458/ (accessed January 13, 2007). "Officers evaluate Enterprise AirSpeed program." Marine Corps News -> Officers evaluate Enterprise AirSpeed program. www.usmc.mil/.../mcn2000.nsf/ac95bc775efc34c685256ab50049d458/165b69bc532aedd285257207000571c7?OpenDocument (accessed January 13, 2007).

¹⁰ "Marines see GCSS-MC for the first time." LOGMOD. <https://logmod.hqmc.usmc.mil/> (accessed December 22, 2007).

¹¹ J.J. Yopp. "Future Seabasing Technology Analysis: Logistics Systems" Center for Naval Analysis, Alexandria, VA., Aug 2006.,15.

¹² Ibid.,39.

¹³ Ibid.,40.

¹⁴ Ibid.,15.

¹⁵ Headquarters U.S. Marine Corps. Logistics. MCDP 4. (Washington, DC: Headquarters U.S. Marine Corps, February 21, 1997),88.

¹⁶ Joint Pub 4-0, Doctrine for Logistic Support of Joint Operations (January 1995), I-7.

¹⁷ Ibid., I-7.

¹⁸ Michael Russell. "Logistics at Wal-Mart." Wal-mart logistics. ezinearticles.com/?Logistics-At-Wal-Mart&id=295852 ... (accessed February 2, 2008).

¹⁹ Thomas L. Friedman. *The World Is Flat: A Brief History of the Twenty-first Century*. New (York, NY: Picador, 2007),151.

²⁰ Ibid., 169.

²¹ Peter A. Grogan. "Outsourcing: An examination of the Marine Forces Pacific cost reduction initiative" Masters thesis, (Naval Postgraduate School, Dec 1998),8.

²² Ibid.,8.

²³ Ibid.,10,11,12.

²⁴ Ibid,8.

²⁵ Friedman,168.

²⁶ Grogan,34.

²⁷ Ibid.,14,15,16.

²⁸ Ibid.,41.

²⁹ Friedman,167.